COMPAQ

ProLiant 8500 Server

I/O Module Upgrade Guide

First Edition (January 2001)
Part Number 216597-001
Compaq Computer Corporation

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Compaq ProLiant 8500 Server I/O Module Upgrade Guide
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Compaq ProLiant 8500 Server I/O Module Upgrade Guide

Introduction

Use this option kit and the instructions provided in this guide to add PCI-X technology and the ROM-Based Setup Utility (RBSU) to Compaq *ProLiant*™ 8500 servers.

After the upgrade, the server will become a ProLiant DL760. A new service number will be assigned to the server to identify the new components. This service number is used to identify the type of system you have and will assure that proper help and diagnosis is given by the Call Center or Service Technician. You will maintain the current system serial number, and when you call for service, you should provide both numbers: the original system serial number, and the upgrade service number.

IMPORTANT: After the upgrade, the server will only support Microsoft Windows NT Server 4.0 and Windows 2000. Also, the server will only support three 5V I/O expansion boards and eight 3.3V I/O expansion boards. For detailed PCI/PCI-X expansion slot information, refer to the "Supported I/O Expansion Boards" section of this document.

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Kit Contents

- I/O drawer with the cable for the Remote Insight Lights-Out Edition board installed
- *SmartStart*™ and Support Software CD 4.90B
- ProLiant 8500 I/O Module Upgrade Kit Support Software CD
- ProLiant 8500 I/O Module Upgrade Kit Migration diskette
- Compaq Server Diagnostics diskette
- *ROM-Based Setup Utility User Guide*
- Compaq ProLiant 8500 Server I/O Module Upgrade Kit Quick Installation poster
- 2 PCI/PCI-X access panel hood labels
- 1 ProLiant DL760 label
- 2 service number labels

Tools Required

- T-15 screwdriver
- Flathead screwdriver

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Upgrade Precautions

WARNING: There is a risk of personal injury from hazardous energy levels. The installation of options and routine maintenance and servicing of this product shall be performed by individuals who are knowledgeable about the procedures, precautions, and hazards associated with equipment containing hazardous energy circuits.

WARNING: To reduce the risk of personal injury or damage to the equipment, refer to the documentation supplied with the system, and observe the appropriate safety precautions and option installation instructions.

WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

WARNING: To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded electrical outlet that is easily accessible at all times.
- Disconnect power from the system by unplugging the power cord from either the electrical outlet or the system.

CAUTION: To prevent damage to your system, you must become static-free by touching a screw or unpainted surface on the system's housing before beginning these procedures. In addition, avoid touching any exposed metal on the option board and chip or on the system's circuit boards.

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Preparing the Server for the Upgrade

IMPORTANT: The ProLiant 8500 I/O Module upgrade process may destroy data on your server. To ensure that you do not lose data, Compaq recommends that you back up your server.

IMPORTANT: The upgraded server will only support the Microsoft Windows NT Server 4.0 and Windows 2000 operating systems.

1. Back up your data. If you have a new ProLiant 8500 system with no operating system installed, go to the "Configuring the Server" section of this guide.
2. If your server is installed with Microsoft Windows NT Server 4.0 or Windows 2000, go to the "Installing the ProLiant 8500 I/O Module Upgrade Kit Support Software CD" section of this guide.
3. If your current server is running an operating system other than Microsoft Windows NT Server 4.0 or Windows 2000, run the Erase Utility from the SmartStart and Support Software CD 4.90B and continue with the "Configuring the Server" section of this guide.

Configuring the Server

SmartStart is the intelligent way to configure the server and to load the system software, thereby achieving a well-integrated server that ensures maximum dependability and supportability.

To install the SmartStart and Support Software CD 4.90B:

1. Insert the SmartStart and Support Software CD 4.90B.
2. Reboot your server from the SmartStart and Support Software CD 4.90B.
3. Follow the screen prompts.

   NOTE: During this process you will be prompted to load the operating system.

4. Install *Compaq Insight Manager*™ when prompted by SmartStart.

When the CD-ROM busy LED indicator is illuminated, the SmartStart installation sequence begins.

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The first time the server is configured, the SmartStart program automatically creates a system partition and installs the Compaq System Configuration Utility and other Compaq utilities in that partition.

Refer to the Server Setup and Management pack for instructions on using SmartStart.

Installing the ProLiant 8500 I/O Module Upgrade Kit Support Software CD

The ProLiant 8500 I/O Module Upgrade Kit Support Software CD contains the Compaq Support Paqs for Microsoft Windows NT Server 4.0 and Microsoft Windows 2000. The CD also contains the Compaq System Erase utilities. To begin the update:

1. Load the CD into the CD-ROM drive.
2. If Autorun is active, the Compaq Remote Deployment Utility screen is opened. If Autorun is not enabled, run *SETUP.EXE* from the \NTCSP folder.
3. Enter the Target Computer and then click on the Open Support Paq button.
4. The Select a Support Paq to Open window displays with two files. If you are running Windows 2000, highlight the *BP000031* file. If you are running Windows NT Server 4.0, highlight the *BP000029* file.
5. Click the Open button.

   The Compaq Remote Deployment Utility screen will display again with all the components on the CD. By default, all components will be flagged to be updated.
6. Click the Install button at the top of the screen to begin the installation process.

   After all components have been installed, a listing of the installed components will display.
7. Continue with the "Updating the System Partition with Compaq Server Diagnostics" section of this guide.

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Updating the System Partition with Compaq Server Diagnostics

Compaq Server Diagnostics will be updated on the system partition. This step is necessary, or Compaq Server Diagnostics would have to be run from the diskette each time. To install Compaq Server Diagnostics onto the system partition, perform the following steps:

1. Reboot the server.
2. At the end of the Power On Self-Test (POST), press **F10** to access the Compaq System Configuration screen.
3. Press **Enter** at the Compaq logo screen to access the Main Menu.
4. Insert the Compaq Server Diagnostics diskette into your diskette drive.
5. At the Main Menu, select the System Configuration option.
6. Select System Partition at the System Configuration screen.
7. Select Upgrade System Partition at the System Partition screen.
8. Select Compaq Diagnostics from the Upgrade Utility Selection Panel by pressing the **Spacebar** to place an X next to it.
9. Press **Enter** to complete the update.
10. Exit all the way back to the Main Menu screen by pressing ESC from each of the opened menus.
11. Remove the Compaq Server Diagnostics diskette from the server.
12. Insert the ProLiant 8500 I/O Module Upgrade Kit Migration diskette.
13. Continue with the "Updating the System Dispatcher Utility and Migrating the System" section of this guide.

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Updating the System Dispatcher Utility and Migrating the System

This process will update the System Dispatcher utility on the system partition. Also, to maintain the original system serial number when upgrading to the new I/O module, a serial number migration is necessary. The serial number migration process transfers the serial number and the Environmental Variables (EVs) of the existing server onto the new I/O module. To begin this process follow the steps below.

1. Reboot the server.

   Two options will display on the screen.

   - Prepare for Migration
   - Exit and Reboot System

2. Select the "Prepare for Migration" option by pressing the letter **P**.

   The system will respond with "Updating system partition with newer System Dispatcher utilities…"

   When completed, a confirmation "System partition update complete" will display.

   The system will continue with "Collecting Migration Information…" When this completes, you will get the confirmation "Migration information collected and saved successfully."

   The screen will also display the serial number of the server. Record the serial number for use later when verifying the serial number migrated successfully.

3. Leave the ProLiant 8500 I/O Module Upgrade Kit Migration diskette in the server.

   NOTE: If you are upgrading multiple servers, do not reuse the same ProLiant 8500 I/O Module Upgrade Kit Migration diskette. Each upgrade kit is supplied with its own diskette.

4. Power down the server.

   NOTE: For more information regarding powering down the server and accessing the I/O board, refer to the server installation guide or maintenance and service guide supplied with your server.

5. Disconnect all cables and power cables from the server.

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Removing the Cable Management Arm

IMPORTANT: All PCI expansion boards must be removed from the server to perform the upgrade. Before removing the PCI expansion boards, label all cables.

1. Disconnect all cables from the PCI expansion boards (if installed).
2. Loosen the thumbscrew on the cable management arm bracket ❶, and lift up on the bracket ❷ to disconnect the cable management arm from the back of the server.
3. Swing the cable management arm out of the way.

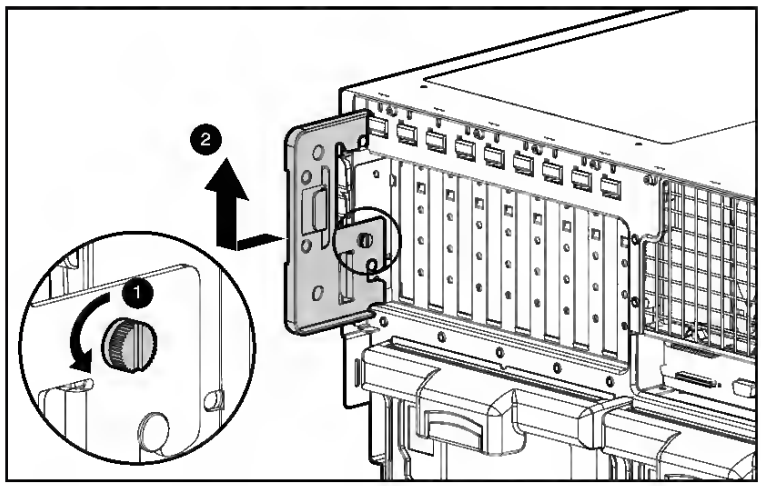

Figure 1. Removing the cable management arm

NOTE: For clarity, the cable management arm is not shown.

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Removing the I/O Module

CAUTION: Some ProLiant 8500 servers do not have a four-pin virtual power button J80 connector on the I/O board. These ProLiant servers use a three-segment virtual power button cable with the Compaq Remote Insight Lights-Out Edition board. If your server is equipped with a three-segment virtual power button cable, refer to the "Removing the Virtual Power Button Cable" section at the end of this guide for further instructions before continuing with this section.

1. Push in on the sides of the cam levers ❶ on the I/O module and rotate the top levers downward ❷.
2. Pull the I/O module out of the rear of the chassis ❸ until it reaches the module stop latch.

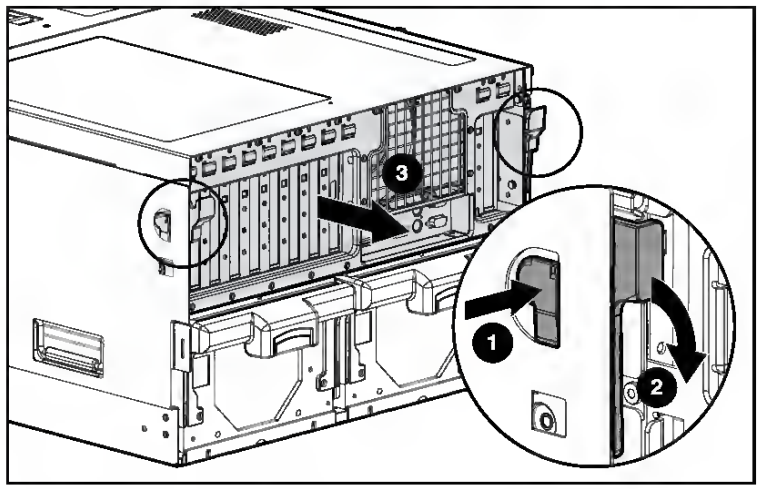

Figure 2. Releasing the I/O module

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3. Press in the module stop latches ❹ on both sides and pull the module out of the chassis ❺.

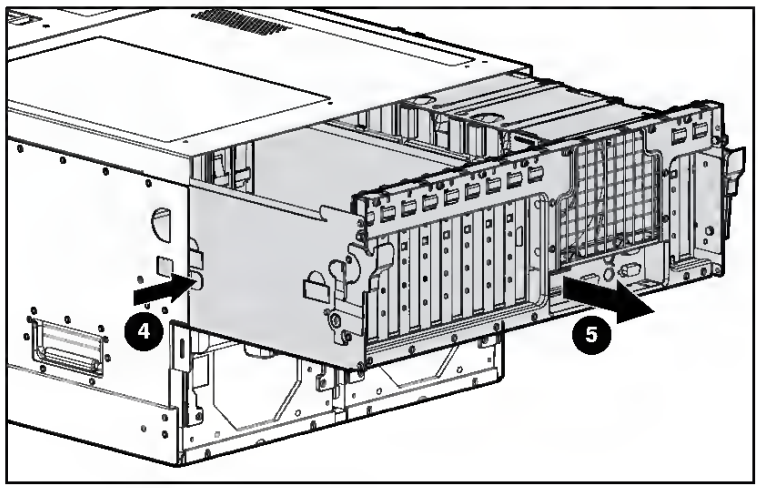

Figure 3. Removing the I/O module

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Transferring I/O Expansion Boards Between I/O Modules

This section provides instructions on removing I/O expansion boards from your current I/O module and installing them into the new I/O module provided with this kit.

NOTE: Before installing the I/O expansion boards into the new I/O module, make sure that the PCI/PCI-X expansion slot will support the I/O expansion board. For detailed PCI/PCI-X expansion slot information, see the "Supported I/O Expansion Boards" section of this guide.

Removing PCI Expansion Boards from Slots 1 Through 9

1. Open the air baffle ❶.
2. Press down on the top of the PCI expansion slot release lever ❷, and open the lever toward the rear of the expansion slot ❸.
3. Lift the PCI expansion board out of the slot ❹.

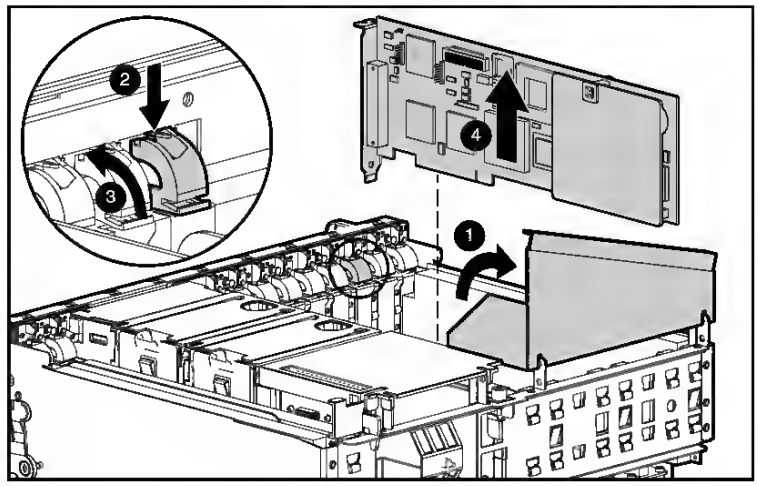

Figure 4. Removing PCI expansion boards from slots 1 through 9

4. Perform steps 1 through 3 for all PCI expansion boards in slots 1 through 9, if installed.

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Removing PCI Expansion Boards from Slots 10 and 11

1. Press down on the top of the PCI expansion slot release lever ❶, and open the lever toward the rear of the expansion slot ❷.
2. Lift the PCI expansion board out of the slot ❸.

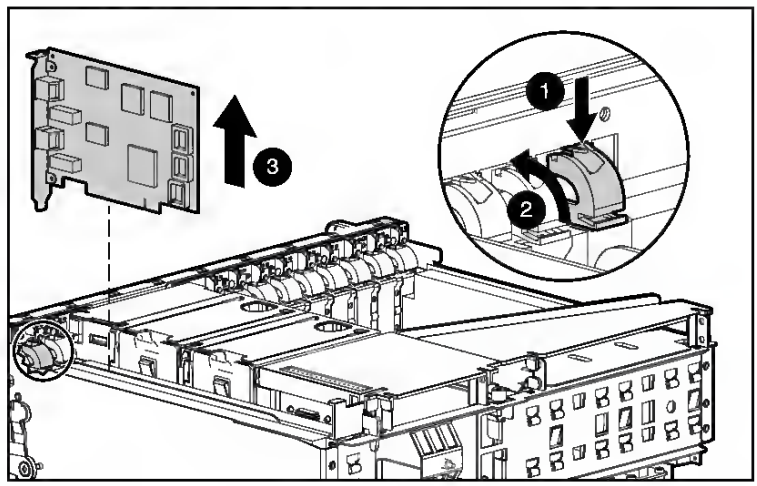

Figure 5. Removing PCI expansion boards from slots 10 and 11

3. Repeat steps 1 and 2 for the remaining PCI expansion board, if one is installed.

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I/O Board Slot Descriptions

The new I/O module has 11 slots divided into 3 buses. The Primary bus (slots 7 through 9) is keyed ❶ for 64-bit 5-V PCI boards or 64-bit PCI universal boards. The Secondary bus (slots 1 through 6) and the Tertiary bus (slots 10 through 11) are keyed ❷ for 64-bit 3.3-V PCI/PCI-X boards or 64-bit universal PCI/PCI-X boards.

NOTE: This is a change from the previous I/O module, where the Secondary bus (slots1 through 6) supported 64-bit 5-V PCI boards.

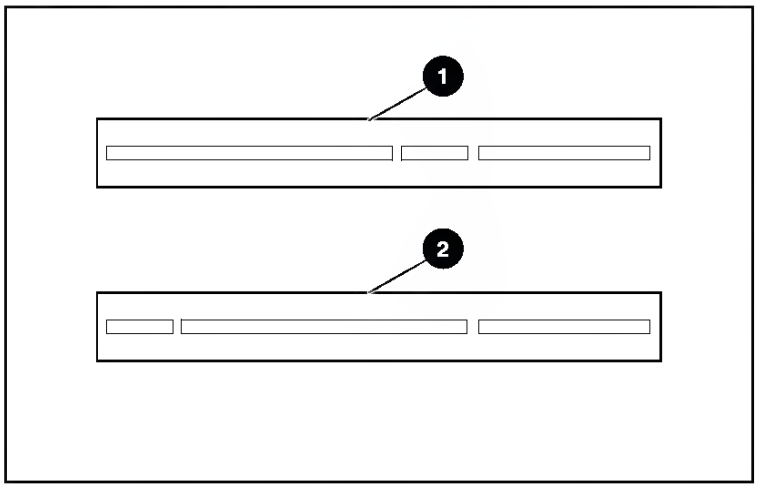

Figure 6. I/O board slot descriptions

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I/O Expansion Board Descriptions

The Primary bus will accept a 64-bit 5-V PCI board ❶ or a 64-bit universal PCI board ❸. The Secondary and Tertiary buses will accept a 64-bit 3.3-V PCI/PCI-X board ❷ or a 64-bit universal PCI/PCI-X board ❸.

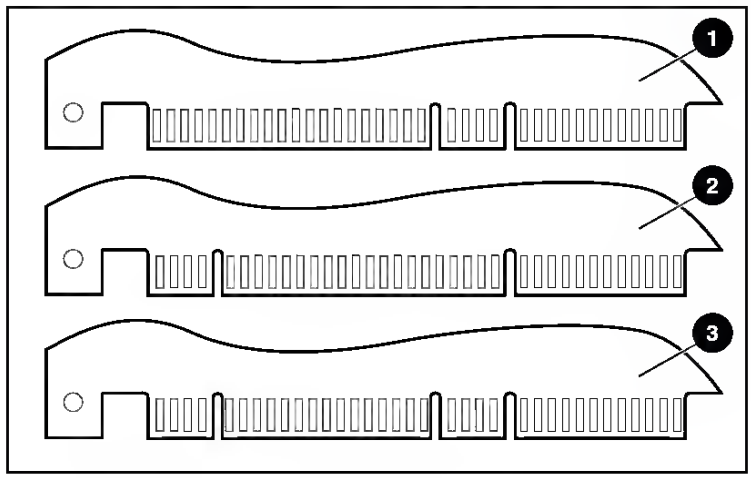

Figure 7. I/O expansion board descriptions

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Supported I/O Expansion Boards

All slots are PCI Hot Plug-capable and will support a variety of industry standard PCI/PCI-X I/O expansion boards.

NOTE: Slots 10 and 11 are capable of operating at 66 MHz PCI and 100 MHz PCI-X, but the PCI/PCI-X bus will only operate as fast as the slowest board installed in either slot or at the maximum bus speed. For a listing of the maximum bus speeds for each of the slots, see the "Bus Speed" section of this guide.

Table 1
Supported I/O Expansion Boards

Slot Number	Expansion Board
1-6	Industry Standard 64-bit 33-MHz PCI and 66-MHz PCI-X Boards (3.3-V keying)
7-9	Industry Standard 64-bit 33-MHz PCI Boards (5.5-V keying)
10-11	Industry Standard 64-bit 33-MHz PCI, 66-MHz PCI, 66-MHz PCI-X, and 133-MHz PCI-X Boards (3.3-V keying)

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Bus Speed

The new I/O board in the ProLiant 8500 uses one 33-MHz PCI bus, one 33-MHz PCI/50-MHz PCI-X bus, and one 66-MHz PCI/100-MHz PCI-X bus at maximum speeds. The following table illustrates the PCI/PCI-X speeds associated with each of the three PCI/PCI-X buses.

Table 2
PCI/PCI-X Hot Plug Bus Speed

Slots	Bus	Maximum PCI/PCI-X Bus Speed
❶-❻	Secondary	64-Bit, 33-MHz PCI or 50-MHz PCI-X
❼-❾	Primary	64-Bit, 33-MHz PCI
❿-⓫	Tertiary	64-Bit, 66-MHz PCI or 100-MHz PCI-X

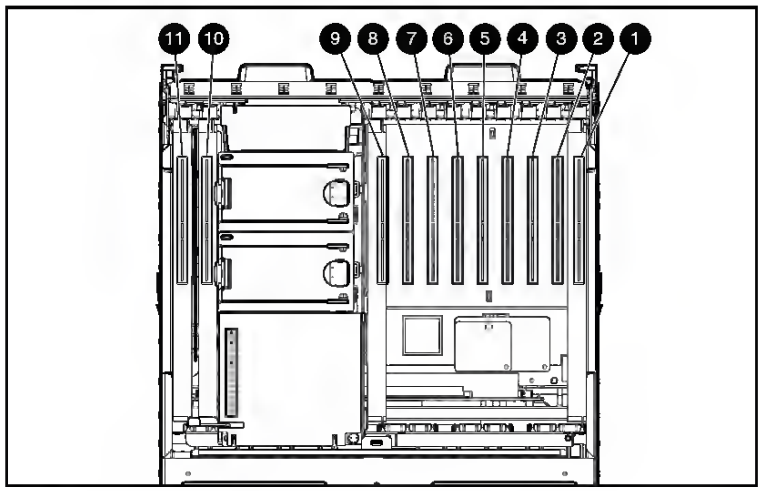

Figure 8. PCI/PCI-X bus assignments

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Installing the I/O Expansion Boards in the New I/O Module

1. Press on the top of the appropriate expansion slot release lever ❶, and open the lever toward the rear of the expansion slot ❷.
2. Remove the expansion slot cover ❸.
3. Open the air baffle ❹.

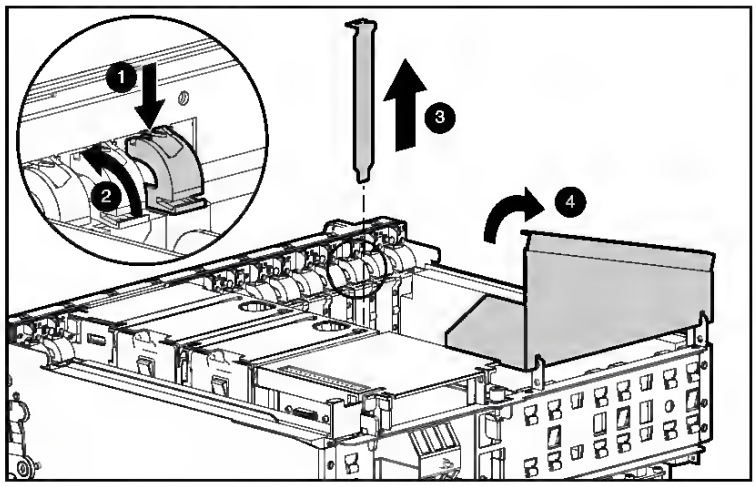

Figure 9. Preparing the hot-plug expansion slot for installation

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4. Insert the PCI/PCI-X expansion board into the appropriate expansion slot ❶ pushing firmly until the board is seated properly.
5. Close the air baffle ❷.
6. Close the expansion slot release lever ❸.

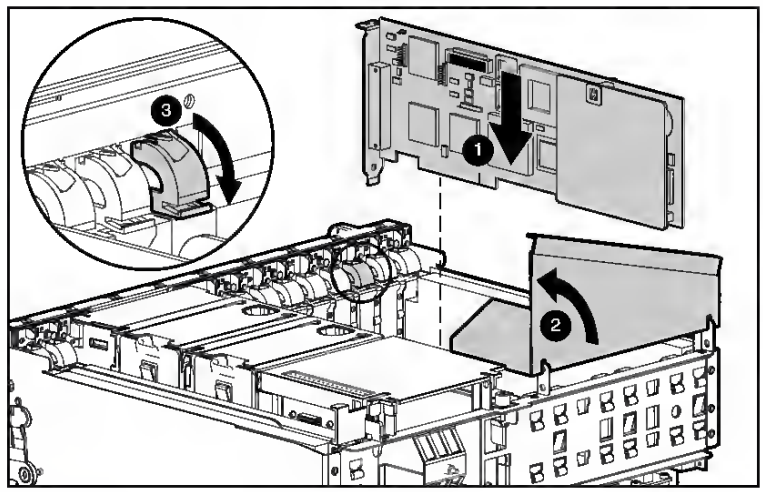

Figure 10. Inserting the PCI/PCI-X expansion board

7. Replace any expansion boards removed from slots 10 and 11.
8. Repeat steps 1 through 6 for the remaining expansion boards.

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9. Verify that the serial number ❶ on the new I/O module matches the serial number on the service number labels included in your kit.

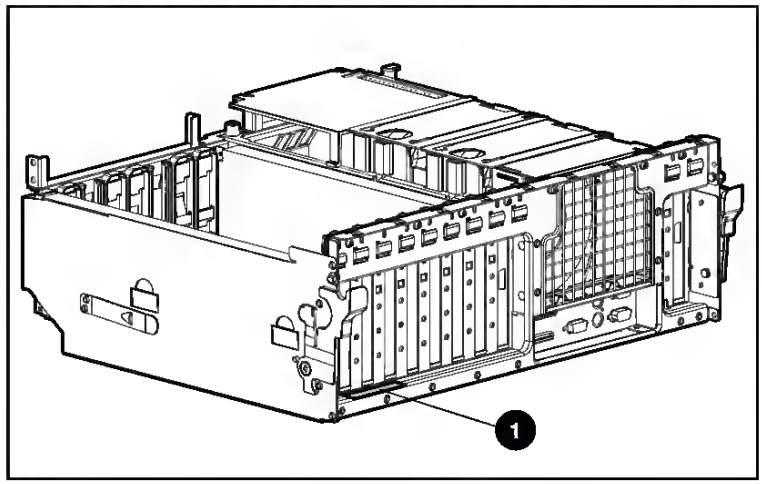

Figure 11. New I/O module serial number label location

10. Slide the new I/O module into the server until the cam levers engage with the server chassis.
11. Secure it by rotating the top cam levers upward.
12. If you are not installing a Remote Insight Lights-Out Edition board, go to "Completing the Upgrade" section of this guide.

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Installing the Remote Insight Lights-Out Edition Board

If you are installing a Remote Insight Lights-Out Edition board, follow these procedures. Otherwise, continue with the "Completing the Upgrade" section of this guide.

NOTE: The Remote Insight Lights-Out Edition board can be installed in slots 7 through 9. Compaq recommends installing the board in slot 9 for an easier installation.

1. Press on the top of the slot release lever ❶, and open the lever toward the rear of the expansion slot ❷.
2. Remove the expansion slot cover ❸.
3. Open the air baffle ❹.

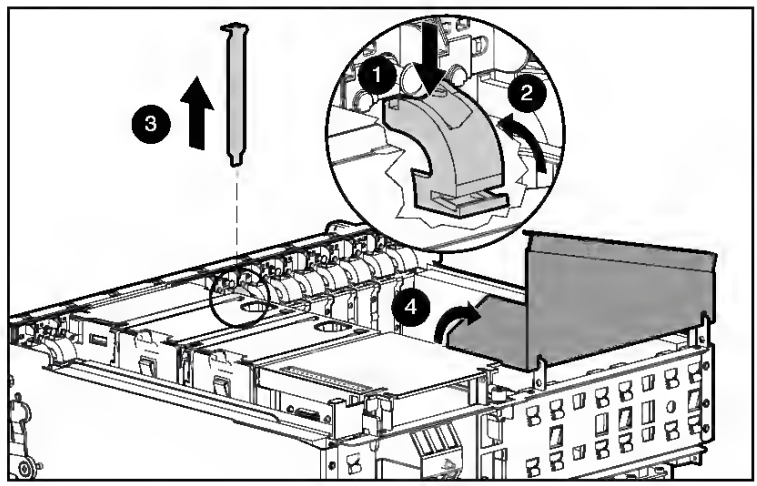

Figure 12. Preparing the expansion slot for installation

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4. Locate the ProLiant DL760 Remote Insight Lights-Out Edition adapter cable next to slot 9. The LED indicator cover must be opened to access the cable.

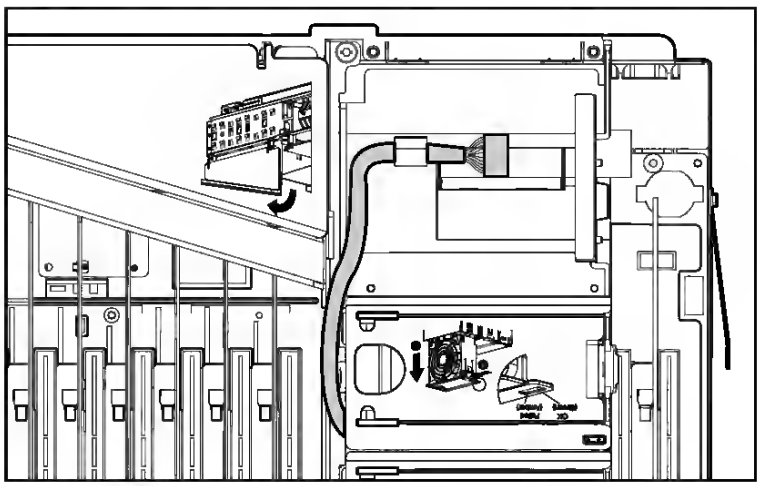

Figure 13. Locating the ProLiant DL760 Remote Insight Lights-Out Edition adapter cable

5. Insert the Remote Insight Lights-Out Edition board into the slot, pushing firmly until the board is seated properly ❶, then close the expansion slot release lever ❷.

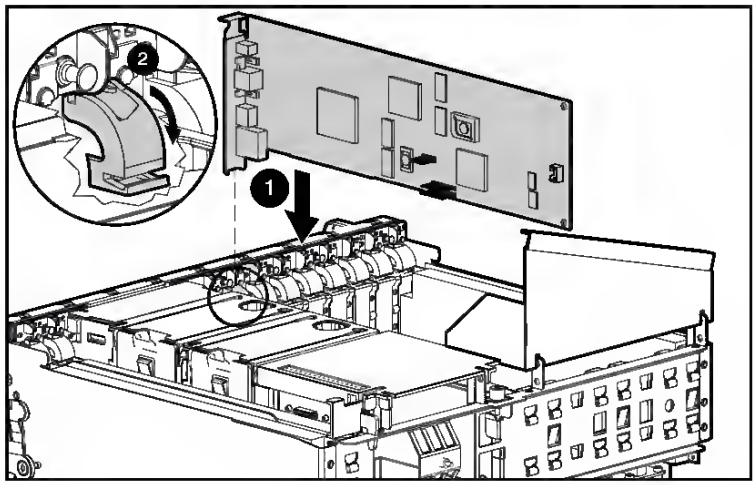

Figure 14. Inserting the Remote Insight Lights-Out Edition expansion board

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6. Connect the ProLiant DL760 Remote Insight Lights-Out Edition adapter cable to the cable connector on the Remote Insight Lights-Out Edition board ❶.
7. Close the air baffle ❷.

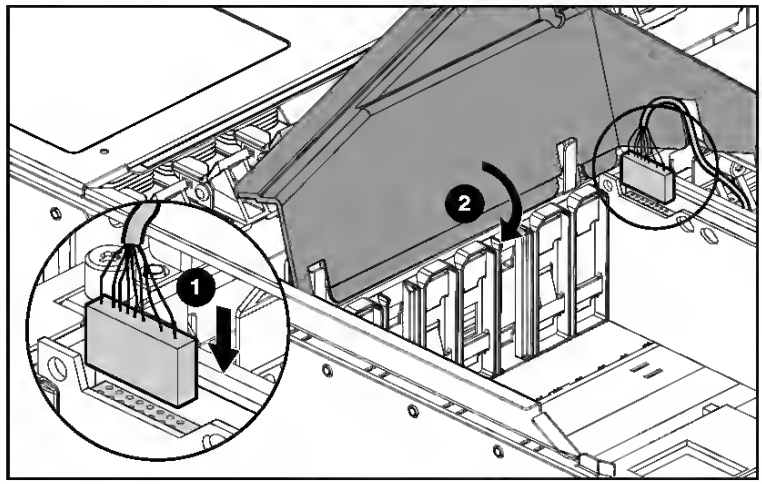

Figure 15. Connecting the ProLiant DL760 Remote Insight Lights-Out Edition adapter cable

8. Slide the new I/O module into the server until the cam levers engage with the server chassis.
9. Secure it by rotating the top cam levers upward.

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Completing the Upgrade

Installing the New Labels

1. Slide the server out of the rack until it is fully extended.
2. Superimpose the Tertiary I/O Slot label over the Additional I/O Information label ❶. Superimpose the Hot-Plug I/O Slot label over the existing I/O Board Information label ❷.
3. Superimpose the DL760 label on the front of the server over the 8500 label ❸.

   NOTE: Do not superimpose the service number labels over the serial number labels.

4. Place a service number label NEXT to each of the serial number labels ❹ located on the server.

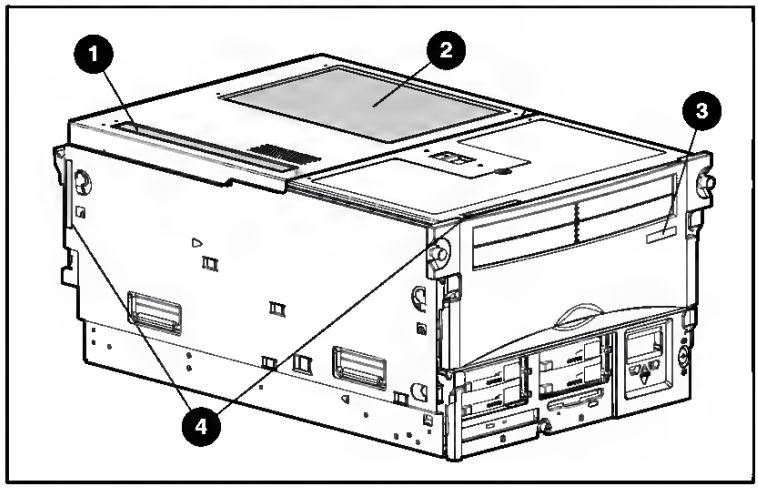

Figure 16. Slot information and serial number label locations

Table 3
Label Location

Item	Component	Item	Component
❶	Additional I/O Information	❸	Model Number
❷	I/O Board Information	❹	Serial Number

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5. Slide the server into the rack.
6. Secure the server to the rack.

Connecting the Cable Management Arm and Cables

1. Connect the cable management arm to the server ❶, and secure it using the thumbscrew ❷.

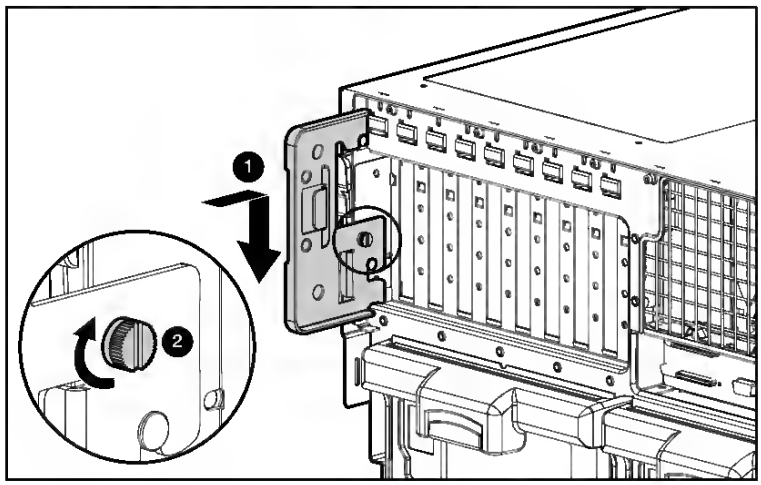

Figure 17. Connecting the cable management arm

NOTE: For clarity, the cable management arm is not shown.

IMPORTANT: If a Remote Insight Lights-Out Edition board is installed, do not connect the mouse and keyboard cables to the board. These signals are provided via the ProLiant DL760 Remote Insight Lights-Out Edition adapter cable.

NOTE: If a Remote Insight Lights-Out Edition board is installed, you can connect the auxiliary power cable to provide a redundant power supply to the board.

2. Connect any cables or power cords that were disconnected from the server at the beginning of the procedure.

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Transferring the Serial Number to the New I/O Module

1. With the ProLiant 8500 I/O Module Upgrade Kit Migration diskette loaded, boot the server.

   The screen will display two options:

   - Restore Migration Information
   - Exit and Reboot System

2. Select "Restore Migration Information" by pressing the letter **R**.

   The system will respond with "Restoring Migration Information".

   After the migration completes, the confirmation "Migration Information Restored Successfully", will display followed by the server serial number and the new service number (serial number of new I/O module).

3. Confirm the new service number matches the number on the service number label located on the top of the server. Confirm the server serial number matches with the server serial number label located on the top of the server as well as with the server serial number noted earlier in the "Updating the System Dispatcher Utility and Migrating the System" section of this guide.

4. Remove the diskette and press any key to reboot the server.

Confirming the Serial Number and Service Number Display

After the server completes the Power-On Self Test, press **F9** to access the RBSU configuration utility screen.

1. Verify the server serial number displayed matches the serial number you recorded earlier.

2. Verify the new service number displayed is correct.

   NOTE: The new service number will contain the serial number of the new PCI-X I/O module.

3. Exit RBSU.

The upgrade is now complete.

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Removing the Virtual Power Button Cable

If your server was installed with a three-segment virtual power button cable, it must be removed. Each segment of the virtual power button cable is labeled A through C and has factory-installed self-adhesive cable guides.

NOTE: Refer to the *Compaq Remote Insight Lights-Out Edition User Guide* for additional information on the virtual power button feature of the option board.

Removing Cable Segment A

Cable segment A of the virtual power button cable is located in the media module. Viewing the server from the front, remove the media module by following these steps:

1. Push in on the sides of the cam levers ❶ on the media module and rotate the top of the levers downward ❷.
2. Pull the media module out of the chassis until it makes contact with the module stop latch.
3. Press in the module stop latches ❸ and pull the module out of the chassis ❹.

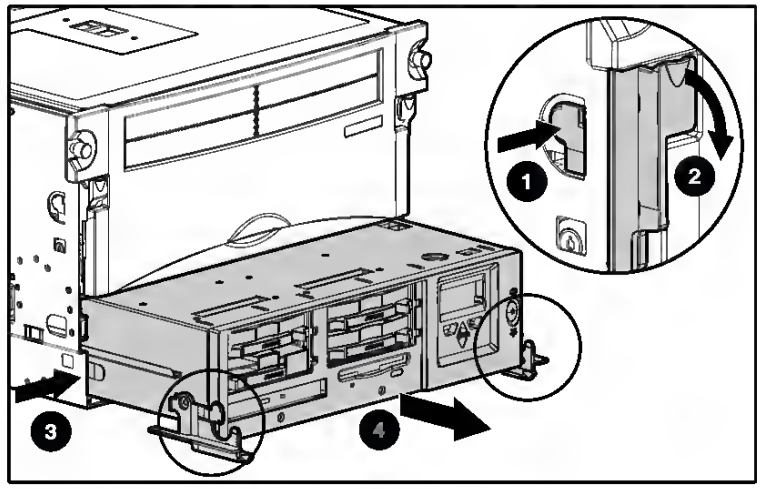

Figure 18. Removing the media module

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4. Disconnect the keyed cable segments A and B.

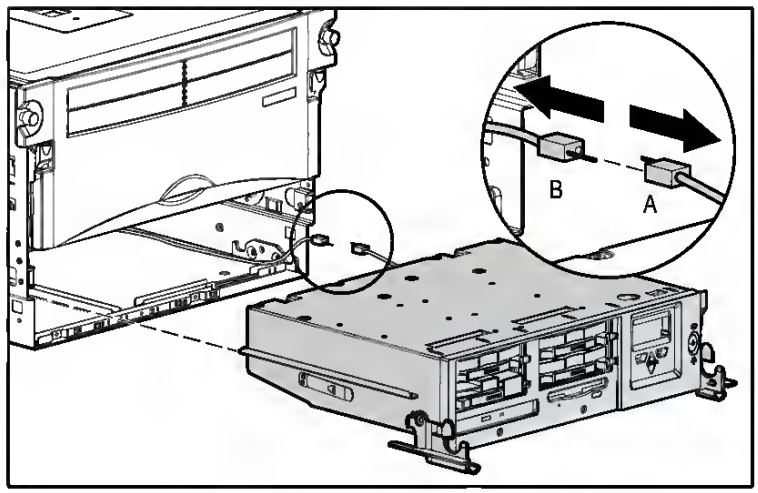

Figure 19. Disconnecting cable segments A and B

5. Remove the self-adhesive cable guide of cable segment A from the rightmost wall of the media module, adjacent to the Power On/Standby connector.

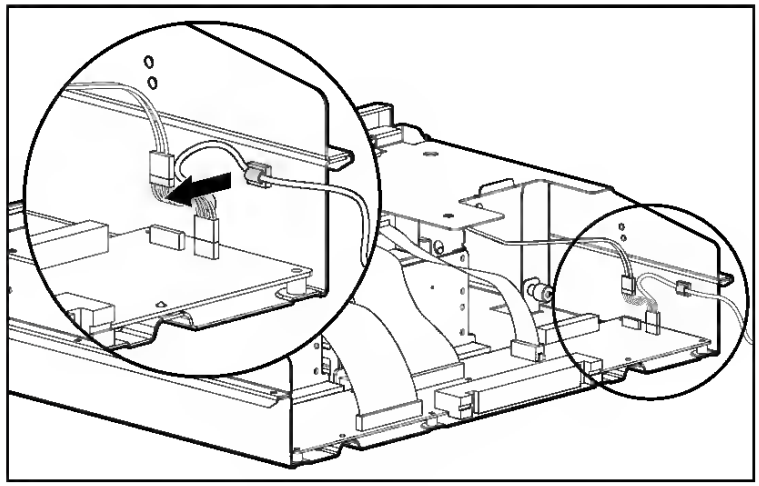

Figure 20. Removing the self-adhesive cable guide

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6. Disconnect the keyed connector of the server's Power On/Standby cable from the dual-head connector.

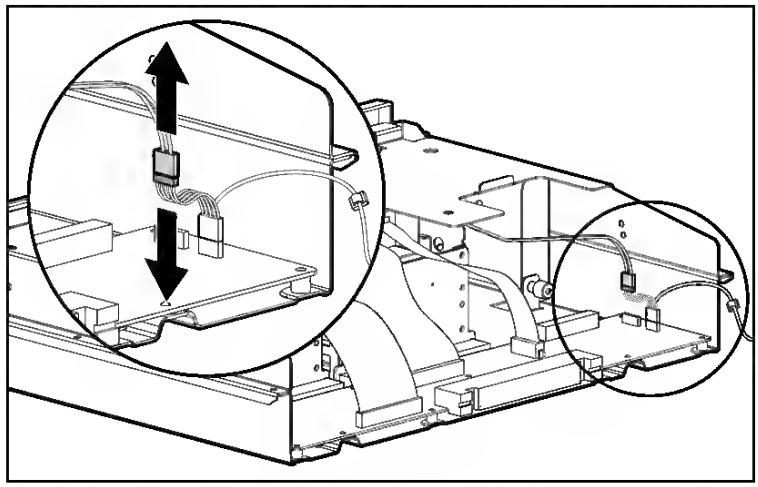

Figure 21. Disconnecting the Power On/Standby cable

7. Disconnect the keyed dual-head connector of cable segment A from the Power On/Standby connector on the media board.

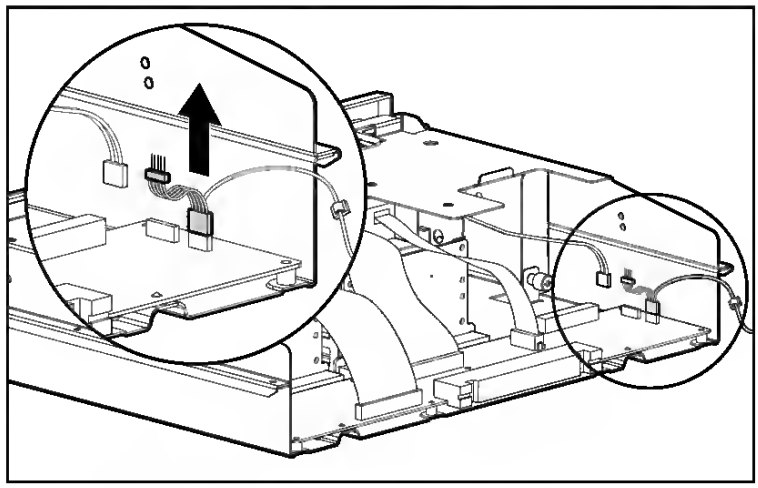

Figure 22. Disconnecting the keyed dual-head connector

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8. Connect the Power On/Standby switch connector to the media board in the media module.

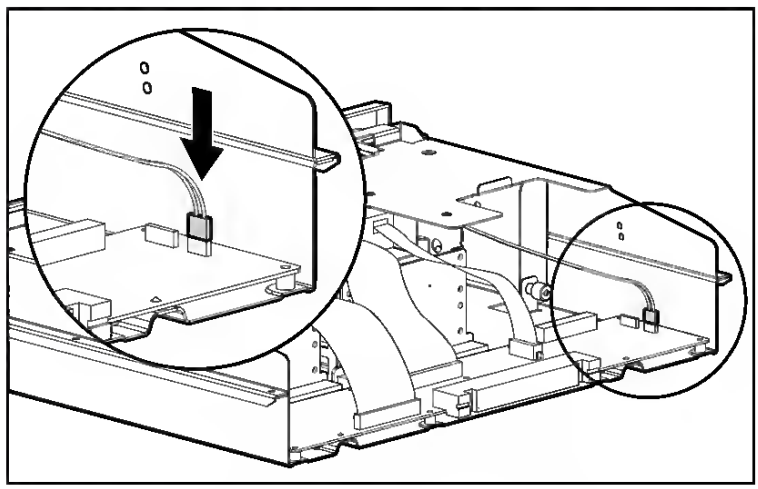

Figure 23. Connecting the Power On/Standby switch connector

9. Set the media module aside.

   Cable segment A is now removed.

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Removing Cable Segment B

Cable segment B is situated on the system midplane board and connects cable segment A in the media module to cable segment C in the I/O module.

1. Loosen the thumbscrews and slide the server out of the rack until it is fully extended.

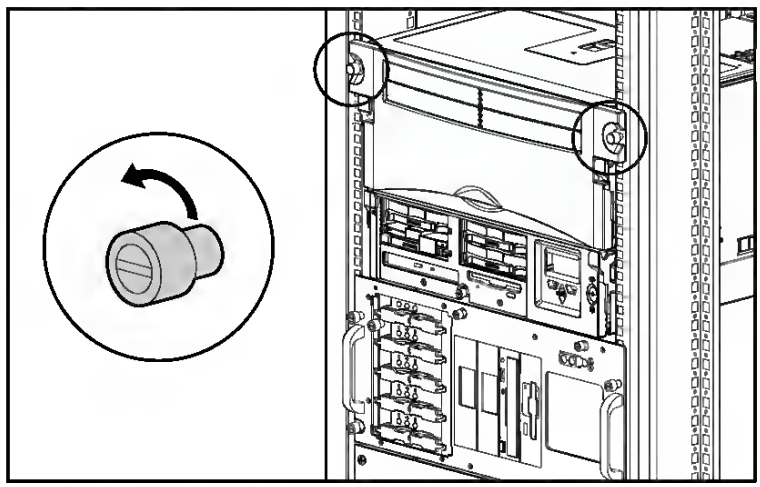

Figure 24. Loosening the rack thumbscrews

2. Loosen the top access panel screw ❶, slide the latch forward ❷, and slide the top access panel ❸ toward the front of the server.

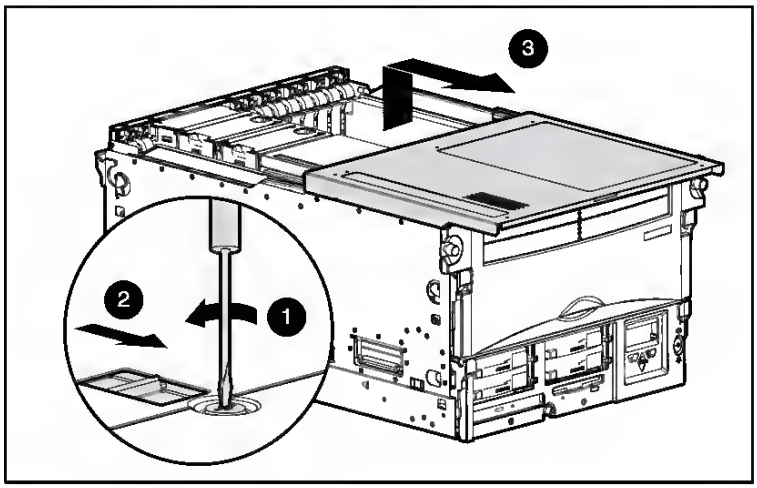

Figure 25. Opening the top access panel

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3. Looking down on server from the front, disconnect the keyed cable segments B and C located on right side just forward of the air baffle.

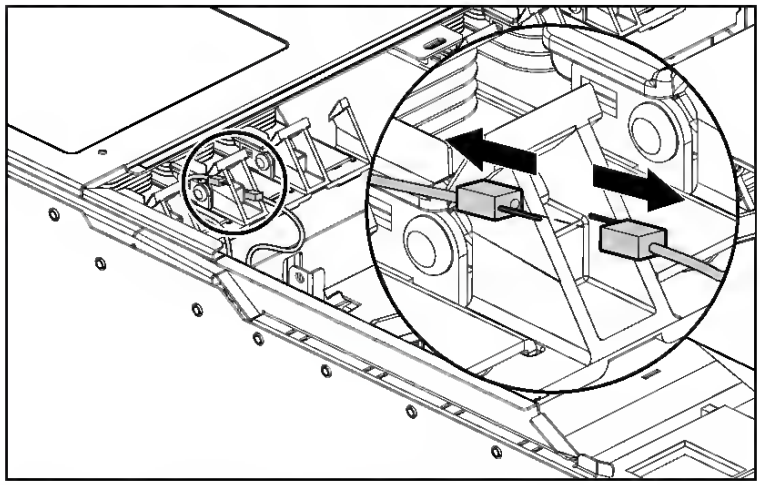

Figure 26. Disconnecting cable segments B and C

4. Viewing the server from the front, remove the self-adhesive cable guide without Velcro from the base of the server in the media module area, adjacent to the right server wall.

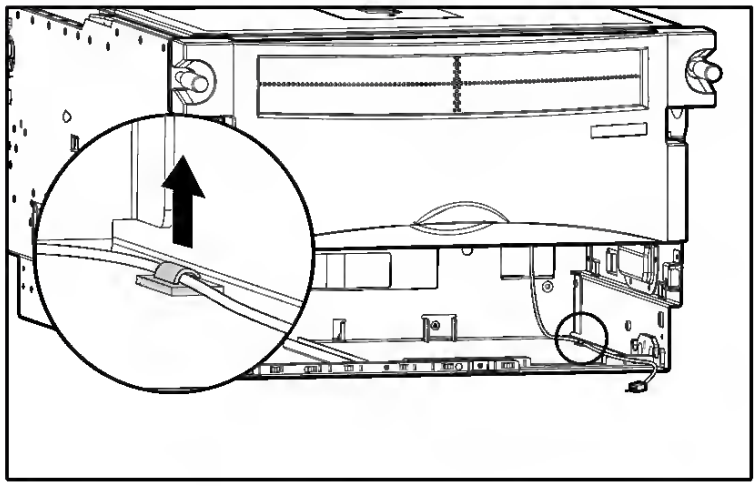

Figure 27. Removing cable guide from media module area

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5. Remove the power supplies located under the I/O module on the rear of the server to gain access to cable segment B.
6. Viewing the server from the rear, remove the cable guide with Velcro from the back of the vertical wall of the system midplane board, adjacent to the left server wall.

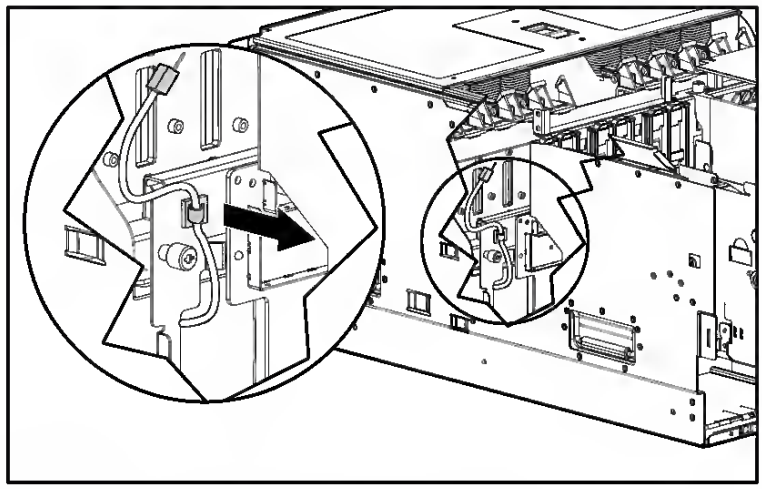

Figure 28. Removing cable guide from system midplane

7. Viewing the server from the front, pull the end of cable segment B closest to the cable guide with Velcro through the right vent hole in the system midplane board and down toward the media module area.

   Cable segment B is now removed.

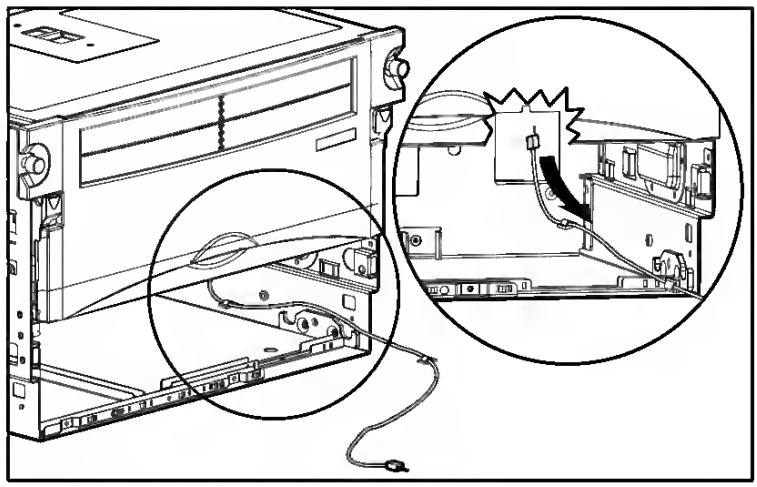

Figure 29. Removing cable segment B

8. Slide the media module back into the server.

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Removing Cable Segment C

Cable segment C of the virtual power button cable is situated in the I/O module and connects to cable segment B located in the system midplane.

Viewing the server from the rear, slide the I/O module backward several inches by following these steps:

1. Push in on the sides of the cam levers ❶ on the I/O module and rotate the top of the levers downward ❷.
2. Pull the I/O module out of the chassis ❸ to gain access to the system midplane.

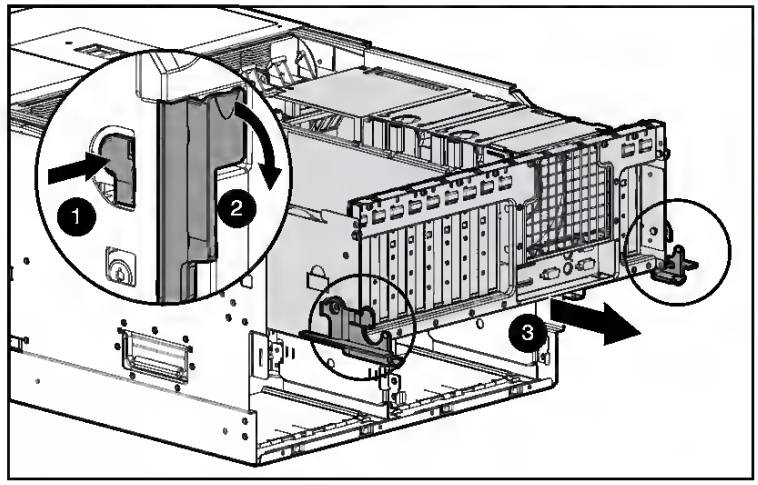

Figure 30. Gaining access to the I/O module

3. Open the air baffle.

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4. Disconnect the four-pin connector of cable segment C from the virtual power button J12 connector on the Remote Insight Lights-Out Edition board.

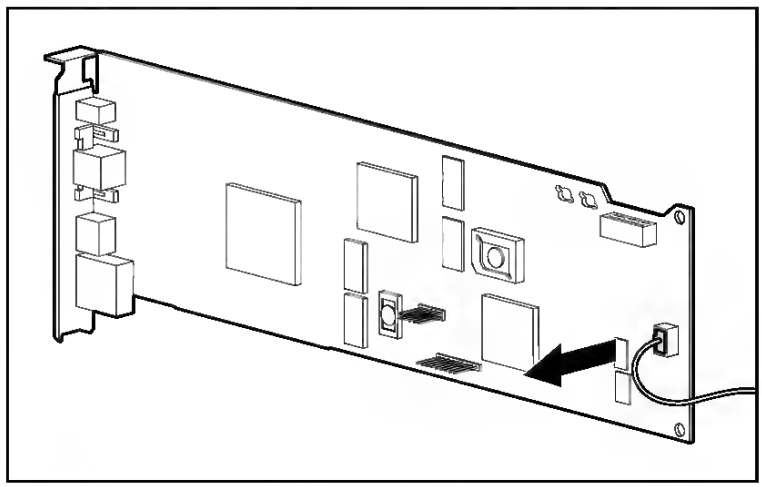

Figure 31. Disconnecting cable segment C from the Remote Insight Lights-Out Edition board

5. Pass the four-pin connector end of cable segment C through the bole in the air baffle as shown.

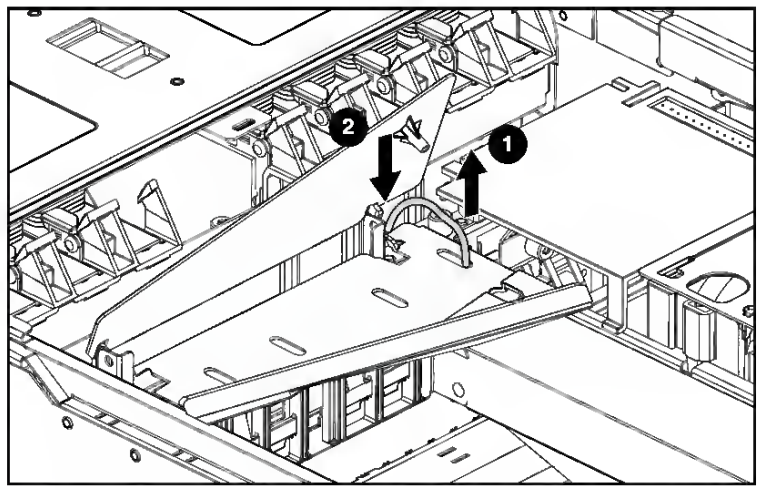

Figure 32. Passing cable segment C through the air baffle

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6. Viewing the server from the front, open the I/O module air baffle and remove the four-pin connector end of the cable from the air baffle ❶.
7. Remove the self-adhesive cable guides of cable segment C from the lip on the outside wall of the I/O module PCI expansion slot area ❷.

   Cable segment C is now removed.

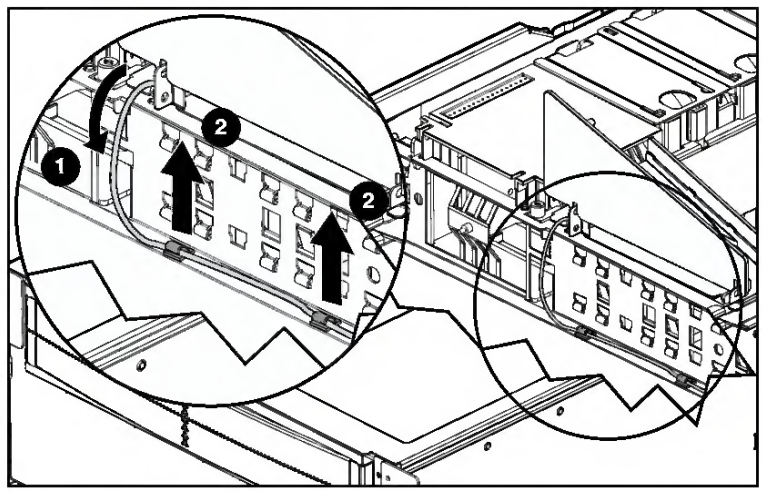

Figure 33. Removing cable segment C

The virtual power button cable is now removed. Return to "Removing the I/O Module" section of this guide to continue the I/O module upgrade.

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